



# AN ANALYTICAL OVERVIEW OF PASSENGER TRAFFIC FOR SELECTED INDIAN AIRPORTS

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## ABSTRACT

Most of the regional airports in India are financially unsustainable because of low and fluctuating passenger traffic. Despite double digit passenger traffic growth since past four years, most regional Indian airports are yet to achieve financial sustainability due to high fixed operating costs and low non-aeronautical revenue. The Indian government is putting special emphasis on regional air connectivity through UDAN (Ude Desh ka Aam Nagrik) scheme. However, it is difficult to ascertain whether such schemes can ensure airport profitability. This paper attempts to find the operating breakeven point in terms of annual passenger traffic for 27 regional airports over a period of three years.

**KEYWORDS:** Passenger Traffic, Financial Sustainability, Airport Profitability, Breakeven Point

## INTRODUCTION

Passenger traffic at regional airports rendering them unprofitable, governments continue to support these airports. Subsidies are provided to unprofitable airports in different forms such as discounts to residents, route subsidies, traffic distribution rules imposed on airlines, state-owned airlines providing connectivity or subsidies to airports. The airport management must have quality forecasts regarding the future passenger flow in order to be able to properly decide regarding the future investments in the airport infrastructure, personnel policy and airport tariff policy.

### Indira Gandhi International Airport (DEL)

Located in the national capital, Indira Gandhi International Airport is not only the busiest in India but also the 12th busiest airports in the world. Handled over 65.7 million passengers in 2017-18, it is expected to cross 80 million passengers by the end of 2020. It currently functions with three runways (one of which is among the longest in India) and three terminals (T1C-D, T2 and T3). Under the expansion plans, a new terminal and runway are to be constructed, whereas the capacity of T1C-D is to be increased. It is connected to Central Delhi by the Airport Express (Orange) Line of Delhi Metro and National Highway 48.

### Chhatrapati Shivaji International Airport (BOM)

Covering parts of the Andheri, Vile Parle and Santacruz localities, the Chhatrapati Shivaji International Airport in Mumbai is the second most significant air transit hub in India, catering to more than 48 million travellers in FY- 2018-19. An idea of the world-class service it offers can be gauged from the fact that it was judged the World's Best Airport in the 40 mppa (Million Passengers per Annum) category along with the Delhi Airport at the 2017 Airport Service Quality Awards. It has two terminals (T1 for low-cost domestic flights and T2 for international and domestic operations) and two criss-crossing

runways. Among its newest offerings is the Jaya He GVK New Museum (T2), which has over 5000 exhibits showcasing India's culture and history.

### Kempe Gowda International Airport (BLR)

Opened in 2008 to replace the over-burdened HAL Airport, the Kempe Gowda International Airport in Bangalore has already become the third-busiest air transit hub in the country. Even with a single runway and terminal, it handled more than 195000 flights and 25 million passengers, respectively in 2017. Gate 25-26 at the international area of the terminal is designed to cater to the world's largest airliner, the mammoth Airbus A380. The airport is currently undergoing expansion, under which a new terminal and runway are being constructed to further enhance its aircraft and passenger handling capacity. The airport enjoys direct connectivity to Bengaluru via National Highway 44.

### Netaji Subhas Chandra Bose International Airport (CCU)

The Netaji Subhas Chandra Bose International Airport in Kolkata is steeped deep in history as Amelia Earhart's ill-fated flight passed through it in 1937. As the number of passengers and aircraft movements grew, the airport was expanded 2005 onwards. As part of the plan, the runways were lengthened and CAT III instrument landing system was installed. Catering to just below 20 million passengers in Fiscal Year 2017, it is expected to breach its maximum passenger handling capacity of 26 million soon. Among the international airlines serving it currently are Air India, Biman Bangladesh, Bhutan Airlines, Emirates, Etihad Airways, Myanmar Airways International, China Eastern Airlines, Cathay Dragon, Silk Air, Singapore Airlines, Sri Lankan Airlines and Thai Airways.

## STATEMENT OF THE PROBLEM

Passenger traffic fulfils not only the business needs of a region to move goods between producers, manufacturers, and end consumers, but also creates a host of unintended environmental,

social, and economic impacts. Despite its importance, freight traffic impacts and associated logistic inefficiencies are largely overlooked in the urban transport discussions in developing economies like India. Hence it can be expected to promote further freight research and effective policy instrument design in India.

### OBJECTIVES OF THE STUDY

- To examine the Passenger traffic performance in selected airports in India.
- To investigate the forecasted Passenger traffic performance in selected Indian airports.

### REVIEW OF LITERATURE

The passenger traffic forecasting methodology used by IATA, which estimates the market air demand based on the socio-economic variables of the market, GDP and adjustment factors: regulations, demand, airlines, competition, substitution (Air Traffic Forecasting Methodology by IATA). It has been concluded that there is generally unidirectional Granger causality from GDP to Revenue Passenger Kilometres (RPK), also used as airline traffic. (E. Fernandez, R.R. Pacheco, 2010).

The demand of passenger air traffic based on the following independent variables: flight frequencies, number of seats in the aircraft, ticket price, flight distance, number of spokes in the network, airport capacity, airport area population income, number of local passengers who travel from spoke S to hub H by airline A, total number of initiated passenger trips originating from spoke S (Wenbin Wei, Mark Hansen, 2006).

A similar model, called the Econometric Dynamic Model (EDM) was used to predict the number of passengers according to economic variables, active population, consumer price index, number of flights, average occupancy rate of hotels, value foreign currency exchange rates values at international arrivals (Rafael Bernardo Carmona-Benítez, Maria Rosa Nieto, Danya Miranda, 2016).

### STATISTICAL TOOLS USED IN THE STUDY

#### Growth Rate

Growth rates refers to the percentage change of a specific variable within a specific time period. For investors, growth rates typically represent the compound annualized rate of growth of a company's revenues, earnings, dividends, or even macro concepts, such as gross domestic product (GDP) and retail sales. Expected forward-looking or trailing growth rates two common kinds of growth rates used for analysis.

$$\text{GROWTH RATE} = (\text{CURRENT YEAR} - \text{PREVIOUS YEAR}) / \text{PREVIOUS YEAR}$$

#### Compound Annual Growth Rate (CAGR)

A common modification is the compound annual growth rate (CAGR) which is not a true return rate, but rather a representation that describes the rate at which an investment would have grown if it had grown the same rate every year and the profits were reinvested at the end of each year. The formula for calculating CAGR.

$$\text{CAGR} = (\text{finalvalue} / \text{sratingvalue})^{1/N-1}$$

### Trend Analysis

Trend analysis is a technique used in technical analysis that attempts to predict future stock price Operations based on recently observed trend data. Trend analysis is based on the idea that what has happened in the past gives traders an idea of what will happen in the future. There are three main types of trends: short-, intermediate- and long-term.

### RESULTS AND DISCUSSIONS

#### Passenger Traffic of Selected Indian Airports

#### 1. Passenger Traffic of Indira Gandhi International Airport (Del)

| Year | Passenger Traffic (000mn) | Growth Rate (%) | CAGR    |
|------|---------------------------|-----------------|---------|
| 2017 | 57.70                     | -               | -17.11% |
| 2018 | 65.69                     | 13.8            |         |
| 2019 | 69.23                     | 5.4             |         |
| 2020 | 67.30                     | -2.8            |         |
| 2021 | 22.58                     | -66.4           |         |

#### Interpretation

From the above table, its shows that the Maximum Growth Rate of passenger traffic was attained in the year **2018** at a Growth rate of **13.8%** and the Minimum Growth Rate of passenger traffic was attained in the year **2021** at a Growth rate of **-66.4%** which exhibits that the passenger traffic during the recent year is Decreased the **CAGR** for the period **2017-2021** as recorded about **-17.11**

#### Forecasting Performance by Indira Gandhi International Airport (DEL)

The Forecasting Performance of passenger traffic will be forecast for next five years as follows:

| Year | Forecasted Value |
|------|------------------|
| 2022 | 35.91            |
| 2023 | 20.28            |
| 2024 | 4.27             |
| 2025 | -8.44            |
| 2026 | -13.18           |

From the above table, the Analysis shows that the projected Passenger traffic of **Indira Gandhi International Airport** would be 35.91 in the year 2022. The projected passenger traffic would be 20.28 in the year of 2023. The projected passenger traffic would be 4.27 in the year of 2024, The projected passenger traffic would be -8.44 in the year of 2025, The projected passenger traffic would be -13.18 in the year of 2026.

## 2. Passenger Traffic of Chhatrapati Shivaji International Airport (Bom)

| Year | Passenger Traffic (000mn) | Growth Rate (%) | CAGR  |
|------|---------------------------|-----------------|-------|
| 2017 | 45.2                      | -               | 0.31% |
| 2018 | 48.5                      | 7.3             |       |
| 2019 | 49.2                      | 1.4             |       |
| 2020 | 48.8                      | -0.8            |       |
| 2021 | 45.9                      | -6.0            |       |

### Interpretation

From the above table, it shows that the Maximum Growth Rate of passenger traffic was attained in the year **2018** at a Growth rate of **7.3%** and the Minimum Growth Rate of passenger traffic was attained in the year **2021** at a Growth rate of **-6.0%** which exhibits that the passenger traffic during the recent year is Decreased the CAGR for the period **2017-2021** as recorded about **-0.31%**

## Forecasting Performance by Chhatrapati Shivaji International Airport (Bom)

The Forecasting Performance of passenger traffic will be forecast for next five years as follows:

| Year | Forecasted Value |
|------|------------------|
| 2022 | 7.3              |
| 2023 | 1.4              |
| 2024 | -0.8             |
| 2025 | -6.0             |
| 2026 | 7.3              |

From the above table, the Analysis shows that the projected Passenger traffic of **Chhatrapati Shivaji International Airport** would be 7.3 in the year 2022. The projected passenger traffic would be 1.4 in the year of 2023. The projected passenger traffic would be -0.8 in the year of 2024, The projected passenger traffic would be -6.0 in the year of 2025, The projected passenger traffic would be 7.3 in the year of 2026.

## 3. Passenger Traffic of Kempe Gowda International Airport

| Year | Passenger Traffic (000mn) | Growth Rate (%) | CAGR   |
|------|---------------------------|-----------------|--------|
| 2017 | 22.9                      | -               | -6.84% |
| 2018 | 26.9                      | 17.47           |        |
| 2019 | 27.5                      | 2.23            |        |
| 2020 | 10.9                      | -60.33          |        |
| 2021 | 16.1                      | 47.30           |        |

### Interpretation

From the above table, it shows that the Maximum Growth Rate of passenger traffic was attained in the year 2021 at a Growth rate of 47.30% and the Minimum Growth Rate of passenger traffic was attained in the year 2020 at a Growth rate of -60.33% which exhibits that the passenger traffic during the recent year is increased the CAGR for the period 2017-2021 as recorded about -6.84

## Forecasting Performance by Kempe Gowda International Airport

The Forecasting Performance of passenger traffic will be forecast for next five years as follows:

| Year | Forecasted Value |
|------|------------------|
| 2022 | 12.0             |
| 2023 | 6.3              |
| 2024 | 2.1              |
| 2025 | 1.3              |
| 2026 | -4.3             |

From the above table, the Analysis shows that the projected Passenger traffic of **Kempe Gowda International Airport** would be 12.0 in the year 2022. The projected passenger traffic would be 6.3 in the year of 2023. The projected passenger traffic would be 2.1 in the year of 2024, The projected passenger traffic would be 1.3 in the year of 2025, The projected passenger traffic would be -4.3 in the year of 2026.

## 4. Passenger Traffic of Nethaji Subhas Chandra Bose International Airport

| Year | Passenger Traffic (000mn) | Growth Rate (%) | CAGR    |
|------|---------------------------|-----------------|---------|
| 2017 | 15.8                      | -               | -13.34% |
| 2018 | 19.9                      | 25.8            |         |
| 2019 | 21.9                      | 10.0            |         |
| 2020 | 22.0                      | 0.6             |         |
| 2021 | 7.7                       | -64.9           |         |

### Interpretation

From the above table, it shows that the Maximum Growth Rate of passenger traffic was attained in the year 2018 at a Growth rate of 25.8% and the Minimum Growth Rate of passenger traffic was attained in the year 2021 at a Growth rate of -64.9% which exhibits that the passenger traffic during the recent year is Decreased the CAGR for the period 2017-2021 as recorded about -13.34

## Forecasting Performance by Nethaji Subhas Chandra Bose International Airport

The Forecasting Performance of passenger traffic will be forecast for next five years as follows:

| Year | Forecasted Value |
|------|------------------|
| 2022 | 13               |
| 2023 | 9                |
| 2024 | 4                |
| 2025 | 1                |
| 2026 | 0                |

From the above table, the Analysis shows that the projected Passenger traffic of **Netaji Chandra Bose International Airport** would be 13 in the year 2022. The projected passenger traffic would be 9 in the year of 2023. The projected passenger traffic would be 4 in the year of 2024, The projected passenger

traffic would be 1 in the year of 2025, The projected passenger traffic would be 0 in the year of 2026.

## CONCLUSION

Passenger traffic is one of the most important factors which guides the strategic and tactical decisions of both the airport and airline company management. In this regard, accurate estimation of passenger traffic will optimize an airport's financial planning for the upcoming years.

This study helps to predict of passenger traffic for the future use and here is the estimation of last 5 years passengers traffic growth for the selected Indian Airports.

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